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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project | Date | Author RMO

TITLE

1939 FOREST INSECT SURVEY, SIERRA NATIONAL FOREST

by
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Berkeley, California
December 12, 1939

Annex 1
SB
763
.C2 S6
1939

U. S. GOVERNMENT PRINTING OFFICE 8—9742

SUBJECT—
INDEX NO.—

Forest Insect Laboratory
Berkeley, California
December 12, 1939

1939 FOREST INSECT SURVEY, SIERRA NATIONAL FOREST

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1939 FOREST INSECT SURVEY, SIERRA NATIONAL FOREST

INTRODUCTION

The 1939 Forest Insect Survey of the Sierra National Forest was made by the Forest Insect Laboratory, Berkeley, California. The survey was carried out September 28 to October 14, 1939, by a four-man party. The party consisted of R. S. Burns, Noel Street and Herman Daughs, under the leadership of S. T. Carlson. Associate Entomologist Struble, during the summer and fall months, made insect investigations and carried out reconnaissance, particularly in Fish Creek, Rock Creek, and in the vicinity of Signal Peak. The cost of making this survey was borne by the Forest Insect Laboratory.

METHOD AND SCOPE OF SURVEY

Two methods of obtaining data for the survey were employed. One method was the 100 percent cruise of six permanent sample plots (Table I, Appendix). The second method was a general reconnaissance of the principal forest areas that are regularly included in the annual survey. A total of 71,900 acres of virgin stand was surveyed. Data from plot surveys and reconnaissance are the bases for loss estimates (Table II, Appendix) and status of infestation applied to previously established infestation units.

GENERAL INFESTATION CONDITIONS

A general increase of insect activity over practically all of the forest has been observed. The mountain pine beetle (Dendroctonus monticolae Hopk.) has become especially active in sugar pine, and one new center of infestation has been recorded in the Rock Creek Unit. Flatheads (Melanophila spp.) have increased also, notably in ponderosa pine and Jeffrey pine in the Chiquito Basin. The major part of the timber losses were caused by the western pine beetle (Dendroctonus brevicomis Lec.) in ponderosa pine.

Many of the infested trees were in close proximity to 1937-38 windfalls, of which there were many. It is known that green windfalls set up an attraction for insects. This attraction, coupled with the additional broods which developed in down material, accounts for this type of infestation.

Present indications are that the 1939 loss will exceed the previous year's losses by about 40% in volume. Direct control has been recommended for Bass Lake, Fence Meadow and a portion of the Rock Creek Unit.

CONDITIONS IN UNIT AREAS

A summary of the estimates of the 1939 losses on the separate units is given in Table II.

The infestations in Hugh Ryan, Cascadel, Bass Lake and Blue Canyon Units are endemic. Maintenance control, however, is recommended in the Bass Lake Unit because of the intensive recreational use it receives, and the desirability of maintaining the present endemic condition. The rigid control measures that have been maintained in this area for the past 8 years have undoubtedly kept the infestation down.

Jackass Unit: A general increase of mountain pine beetle and western pine beetle infestations have doubled the 1939 losses over those of 1938. The increased infestation, though not considered epidemic, is one which will bear close watching. Control in this unit would be a difficult and expensive job because of the inaccessibility and the immediate values at stake. Control, therefore, because of these considerations is not justified at the present time.

Placer Unit: The aggressive insect activity observed last year in this unit has continued. Flathead killing of immature and suppressed trees has been slightly increased. It appears that the available supply of susceptible trees has been reduced by the infestation to the point where it is expected that the volume of flathead infestation may decline next year. There is likely to be some infestation from the 1939 burn which borders upon the south boundary of the unit. Ordinarily, infestations resulting from fire-injured trees run their course within the burned area, but exceptional cases have been observed where the infestation has extended into unburned stands.

Rock Creek Unit: A sudden outbreak of mountain pine beetle in sugar pine covering an area of about 1000 acres in Fish Creek was observed by Mr. Struble and Mr. Buck in September. The infestation is in a proposed sale area. The remainder of the unit contains an endemic infestation. Control of this localized outbreak is recommended because of the possibility of the infestation increasing and getting into the valuable sugar pine in the unit.

Fence Meadow Unit: The infestation in this unit has been approaching an epidemic status for the past two years. An observation made in July of this season showed that the summer killed trees due to the cool spring weather were late in showing up and it was therefore difficult to determine the status of the infestation. The fall survey showed that the infestation has sustained the level of last year and present trends indicate that the infestation is still increasing. Direct control for the entire unit has been recommended.

RECENT CONTROL*

Four control jobs were undertaken during the spring of 1939. Approximately 20,000 acres were given treatment in the Lewis Creek, Bass Lake, Hogue Ranch and Big Creek areas. A total of 214 trees with a volume of 274,000 board feet were treated by the peeling and burning method. The efficient manner in which control jobs are executed on this forest is a credit to the Sierra organization. In the survey work this fall it was found that the work was well carried out and it is considered that this action was largely responsible for holding down the infestation in these areas while elsewhere increases were noted. The organization of the Sierra Forest has a nucleus of experienced control men who are capable of handling control jobs efficiently.

SUMMARY

One outstanding characteristic of the 1939 infestation is the uniformity of distribution throughout the pine stands. One exception to this is the localized outbreak of mountain pine beetle in sugar pine in Fish Creek drainage which may be a fore runner of a general increase over the whole unit. Flathead activity in ponderosa and Jeffrey pine and the mountain pine beetle in sugar pines are conspicuous.

Direct control has been recommendad for Bass Lake, Fish Creek and Fence Meadow. The Bass Lake job is one of maintenance. The Fish Creek infestation which has made an abrupt appearance, is a threat to the fine sugar pine in a proposed sale area. It is felt that direct control is more feasible and economical when applied to a small rising infestation rather than risk the chance of a more costly one ofer a large area. The Fence Meadow infestation which has been considered serious for two years is showing a further tendency to increase. Control by the peeling and burning method, to be completed by May 15, 1940, is recommended.

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* M. A. Benedict, 5-22-39. "Insect Control, Sierra National Forest, Spring, 1939."

Table I. COMPARATIVE SAMPLE PLOT LOSSES, 1937-38-39*

Sample Plot	Species	1937				1938				1939			
		No. Trees	Trees per A.	Volume B.M.	Volume per A.	No. Trees	Trees per A.	Volume B.M.	Volume per A.	No. Trees	Trees per A.	Volume B.M.	Volume per A.
Cascadel RS-7 320 acres	Ponderosa pine	12	0.04	10,560	33	9	0.03	14,600	46	12	0.04	3,600	11
	Sugar pine												
	Total	12	0.04	10,560	33	9	0.03	14,600	46	12	0.04	3,600	11
	White fir												
	Incense cedar					1		80		2	0.006	600	1.9
	Total					1		80		2	0.006	600	1.9
	Plot Total	12	0.04	10,560	33	10	0.03	14,680	47	14	0.046	4,200	13
Placer RS-8 320 acres	Ponderosa pine	13	0.04	7,550	24	19	0.06	7,490	23	8	0.025	2,500	8
	Jeffrey pine	16	0.05	10,010	31	8	0.03	11,160	34	15	0.046	7,500	23
	Sugar pine												
	Total	29	0.09	17,560	55	27	0.09	18,650	57	23	0.07	10,000	31
	White fir												
	Incense cedar	3	0.01	970	3								
	Total	3	0.01	970	3								
	Plot Total	32	0.10	18,530	58	27	0.09	18,650	57	23	0.07	10,000	31
Jackass RS-9 320 acres	Ponderosa pine	11	0.03	25,600	80	33	0.10	31,080	97	25	0.08	15,000	47
	Jeffrey pine	1		1,100	3	1		1,690	5	1		800	3
	Sugar pine	2	0.006	11,070	35	8	0.02	5,370	17	9	0.03	16,000	50
	Total	14	0.046	37,770	118	42	0.12	38,140	119	35	0.11	31,800	100
	White fir	3	0.01	9,590	30	4	0.01	10,940	34	2	0.006	6,000	19
	Incense cedar	1		1,520	5	1		1,120	4	1		1,000	3
	Total	4	0.01	11,110	35	5	0.01	12,060	38	3	0.006	7,000	22
	Plot Total	18	0.06	48,880	153	37	0.11	50,200	157	38	0.12	38,800	122
Ellis Mdw. RS-10 80 acres	Ponderosa pine	5	0.06	6,330	79	4	0.05	8,450	106	2	0.025	4,000	50
	Sugar pine									1	0.012	3,000	38
	Total	5	0.06	6,330	79	4	0.05	8,450	106	3	0.037	7,000	88
	Incense cedar					1	0.01	3,110	39				
	Plot Total	5	0.06	6,330	79	5	0.06	11,560	145	3	0.037	7,000	88

* 1939 loss estimated. The actual loss cannot be accurately determined at this time.

Table continued on next page.

Table I (continued)

Fence Mdw. RS-11 320 acres	Ponderosa pine	35	0.11	61,460	192	33	0.10	81,170	253	20	0.06	50,000	156
	Sugar pine	5	0.02	1,570	5	11	0.03	53,040	166	5	0.02	7,000	22
	Total	40	0.13	63,030	197	44	0.13	134,210	419	25	0.08	57,000	178
	White fir	4	0.01	19,700	62	2	0.01	3,190	10	4	0.01	10,000	31
	Incense cedar	2	0.006	1,120	4					2	0.006	700	2
	Total	6	0.016	20,820	66	2	0.01	3,190	10	6	0.02	10,700	33
	Plot Total	46	0.14	83,850	263	46	0.14	137,400	429	31	0.10	57,700	211
Hugh Ryan SS-1 320 acres	Ponderosa pine	8	0.025	4,550	14	12	0.04	17,070	53	8	0.025	7,000	22
	Sugar pine												
	Total	8	0.025	4,550	14	12	0.04	17,070	53	8	0.025	7,000	22
	White fir	2	0.006	390	1					2	0.006	1,200	4
	Incense cedar	1	0.003	250	1	3	0.01	1,920	6	2	0.006	1,200	4
	Total	3	0.01	640	2	3	0.01	1,920	6	4	0.01	2,400	8
	Plot Total	11	0.03	5,190	16	15	0.05	18,990	59	12	0.03	9,400	29

Table II - Estimated Unit Pine Losses 1937-38-39

Unit	Area (acres)	1937		1938		1939	
		No. Trees	Volume B.M.	No. Trees	Volume B.M.	No. Trees	Volume B.M.
Hugh Ryan	5,000	128	153,600	104	124,800	125	110,000
Bass Lake *	8,900	69	33,000	75	45,000	150	65,000
Jackass	10,200	448	806,400	320	576,000	1000	1,020,000
Placer	16,000	1,450	1,132,500	550	467,500	1120	496,000
Cascadel	7,600	288	191,600	24	16,800	250	75,000
Blue Canyon	6,400	40	64,000	200	320,000	256	390,400
Rock Creek *	10,200	220	264,000	200	240,000	377	897,600
Fence Meadow *	7,600	960	2,208,000	600	1,380,000	608	1,352,800
Total	71,900	3,599	4,853,100	2,073	3,170,100	3,886	4,406,800

* Control recommended for 1940

T 5 S
T 6 S
T 7 S
T 8 S
T 9 S
T 10 S
T 11 S

R 20 E
R 21 E
R 22 E
R 23 E
R 24 E
R 25 E
R 26 E
R 27 E
R 28 E

HUGH RYAN
BASS LAKE
JACKASS
PLACER
ROCK CREEK
CASCADEL
BLUE CANYON
FENCE MEADOW

HUNTINGTON LAKE GAME REFUGE

SIERRA NATIONAL FOREST
FOREST INSECT SURVEY, 1939

ESTIMATED UNIT PINE LOSSES 1939

UNIT	NO. TREES	VOL. MBM
HUGH RYAN	125	110
BASS LAKE	150	65
JACKASS	1000	1020
PLACER	1120	496
ROCK CREEK	377	898
CASCADEL	250	75
BLUE CANYON	256	390
FENCE MEADOW	608	1353
TOTALS	3886	4407

SAMPLE PLOTS

CONTROL RECOMMENDED FOR SPRING 1940